

WHAT IS CLAIMED IS:

1. A method for producing a fixed pattern display panel from a matrix display panel including  $m$  driving lines ( $m$  is an integer which is equal to or greater than two);  $n$  scanning lines ( $n$  is an integer which is equal to or greater than two)) intersecting with the  $m$  driving lines; and a plurality of pixel portions arranged at intersections of the  $m$  driving lines and the  $n$  scanning lines, each of the pixel portions having a non-volatile binary memory element and a light-emitting element, wherein, when the memory element holds one of two values, the light-emitting element is in an electrically disconnected state between one of the  $m$  driving lines and one of the  $n$  scanning lines, and when the memory element holds the other of the two values, the light-emitting element is in an electrically connected state between the one driving line and the one scanning line; the method comprising:

a writing step of changing the holding state of each of the memory elements of the plurality of pixels to one or the other of the two values, in accordance with a predetermined fixed pattern; and

an electrode producing step of jointly connecting the  $m$  driving lines as a first electrode and jointly connecting the  $n$  scanning lines as a second electrode.

2. A method for producing a fixed pattern display panel according to claim 1,

wherein the memory element and the light-emitting element are connected in series between one of the driving lines and one of the scanning lines in each of the plurality of pixel portions;

wherein, in an initial state, the memory elements are in a high-impedance state which corresponds to the one value, and the memory elements can be changed to a low-impedance state which corresponds to the other value, by applying a writing voltage that is equal to or greater than a predetermined threshold voltage; and

wherein in said writing step, a writing voltage is applied to the series circuit of the memory element and the light-emitting element in each pixel portion existing at locations on the display panel corresponding to the predetermined fixed pattern.

3. A method for producing a fixed pattern display panel according to claim 2,

wherein, in the writing step,  $m \times n$  bits of pattern data corresponding to the predetermined fixed pattern are produced;

wherein the  $n$  scanning lines are scanned one by one in a predetermined order, and a reference potential is applied to one scanning line that is currently being scanned; and

wherein  $m$  bits corresponding to the one scanning line that is currently being scanned are retrieved from the  $m \times n$  bits of pattern data, and the writing voltage is applied to the driving lines corresponding to bits, that indicate light emission, of the  $m$  bits.

4. A method for producing a fixed pattern display panel according to claim 2, wherein the memory elements are organic memory elements, and the light-emitting elements are organic electroluminescent elements.

5. A fixed pattern display panel, comprising:

$m$  driving lines ( $m$  is an integer which is equal to or greater

than two);

n scanning lines (n is an integer which is equal to or greater than two) intersecting with the m driving lines;

a plurality of pixel portions arranged at intersections of the m driving lines and the n scanning lines, each of the pixel portions having a non-volatile binary memory element and a light-emitting element, wherein, when the memory element holds one of two values, the light-emitting element is in an electrically disconnected state between one of the m driving lines and one of the n scanning lines, and when the memory element holds the other of the two values, the light-emitting element is in an electrically connected state between the one driving line and the one scanning line;

a first electrode to which the m driving lines are jointly connected; and

a second electrode to which the n scanning lines are jointly connected.

6. A fixed pattern display panel according to claim 5, wherein the output voltage of a battery is applied between the first electrode and the second electrode.

7. A data writing apparatus for writing fixed pattern data into memory elements of a matrix display panel including m driving lines (m is an integer which is equal to or greater than two); n scanning lines (n is an integer which is equal to or greater than two) intersecting with the m driving lines; a plurality of pixel portions arranged at intersections of the m driving lines and the n scanning lines, each of the pixel portions having a non-volatile binary

memory element and a light-emitting element, wherein, when the memory element holds one of two values, the light-emitting element is in an electrically disconnected state between one of the  $m$  driving lines and one of the  $n$  scanning lines, and when the memory element holds the other of the two values, the light-emitting element is in an electrically connected state between the one driving line and the one scanning line; the writing apparatus comprising:

a device which produces  $m \times n$  bits of pattern data corresponding to a predetermined fixed pattern;

a scanning device which applies a ground potential to the  $n$  scanning lines one by one in a predetermined order; and

driving device which retrieves  $m$  bits from the  $m \times n$  bits of pattern data that correspond to one scanning line that is currently being scanned, and applies the writing voltage to driving lines corresponding to bits, that indicate light emission, of the  $m$  bits.